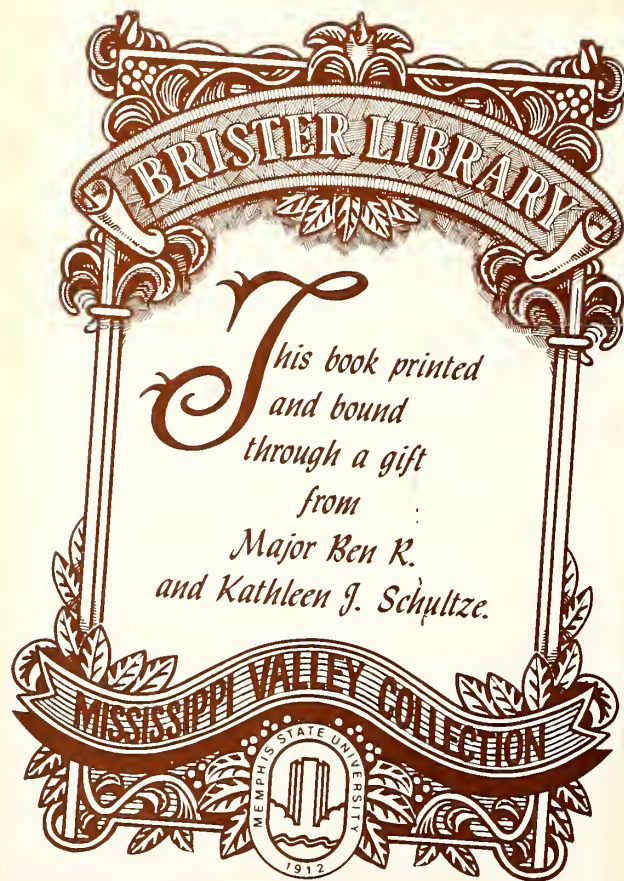


ORAL HISTORY OF THE
TENNESSEE VALLEY AUTHORITY
INTERVIEWS WITH
MR. W. WARREN WOODRUFF

BY CHARLES W. CRAWFORD
TRANSCRIBER - BRENDA MEIER
ORAL HISTORY RESEARCH OFFICE
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ORAL HISTORY OF THE TENNESSEE VALLEY AUTHORITY

INTERVIEWS WITH MR. W. WARREN WOODRUFF

SEPTEMBER 8, 1971

BY CHARLES W. CRAWFORD

TRANSCRIBER - BRENDA MEIER

ORAL HISTORY RESEARCH OFFICE

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PLACE: Chattanooga, Tenn.

DATE: Sep. 8, 1971.

W. Warren Woodruff
(Interviewee) W. WARREN WOODRUFF

Charles W. Crawford
(For the Mississippi Valley Archives
of the John Willard Brister Library
of Memphis State University)

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CRAWFORD: Mr. Woodruff, may we have some biographical information about you? We might start at the beginning and go up to the point at which you joined TVA.

WOODRUFF: Well, I was born in Philadelphia on the fifth of August in 1887 under the direction of Dr. Clara Marshall, who is a friend of my mother's. My very first recollections are of sitting on a white, marble-topped table with a doctor scraping my leg.

CRAWFORD: Had you hurt your leg?

WOODRUFF: No, I was being vaccinated. Vaccination was a new process at that time. I still have the scar right here.

CRAWFORD: As a result of that vaccination?

WOODRUFF: Yes.

CRAWFORD: Now, you were living in Philadelphia then, weren't you?

WOODRUFF: Yes, at 13th and Market. Later my family moved to Ardmore, Pennsylvania. I was educated at Ardmore public schools.

CRAWFORD: How long did you live at Ardmore, Mr. Woodruff?

WOODRUFF: I stayed in Ardmore, in three different houses until I went to college in 1907.

CRAWFORD: Where did you go to college?

WOODRUFF: At Cornell, graduating in the class of 1911.

CRAWFORD: And you started in 1907?

WOODRUFF: Yes.

CRAWFORD: What did you study at Cornell, Mr. Woodruff?

WOODRUFF: At Cornell I was classified as a Mechanical Chemical Engineer but the course is really electrical engineering but they didn't have that rating at that time.

CRAWFORD: Do you remember anything about your courses? Do you remember anything about the engineering studies that you had while you were there?

WOODRUFF: Well, the course was quite simple, first studying physics, including mathematics, some civil engineering, and actually was classified as a mechanical engineer, and I have a diploma to that effect. Actually I spent most of my effort in the electrical part of the course, but at that time there was no doctorate in electronics.

CRAWFORD: Why did you want to study electrical engineering?

WOODRUFF: One of my teachers in grammar school interested me in electronics. He had graduated from Cornell and wanted me to go to Cornell, which I did in 1907.

CRAWFORD: When you graduated from Cornell in 1911, what did you do?

WOODRUFF: My first job was with the New York Central Railroad. This was largely because my grandfather had been a railroad man and had recommended me to Mr. Baldwin of Baldwin Locomotive Works.



CRAWFORD: We'll hurry on toward your TVA experience, but I did want to get something about your work following your graduation from Cornell.

WOODRUFF: Well, the summers I had gone in with the Baldwin Locomotive Works on the recommendation of my grandfather.

CRAWFORD: Had you been doing that in the summers while you were in school?

WOODRUFF: Yes.

CRAWFORD: And when you graduated, did they expect you to go to work for them?

WOODRUFF: No, Baldwin Locomotive Works didn't expect me to, and I went to the New York Central Railroad in Buffalo, New York.

CRAWFORD: What was your work with the New York Central?

WOODRUFF: I worked in what was called the Round House where we worked on locomotives, repairing them and fixing them, getting them ready to go out on the road. After about a

year and a half of that, I found I was being moved to Round House Foreman. Well, Round House Foreman wasn't a job that interested me at all, and I switched to the General Electric Company in Schenectady, New York.

CRAWFORD: Was that after about one year?

WOODRUFF: Just about a year, yes.

CRAWFORD: What had been your work with the New York Central?
Had that been mainly mechanical engineering?

WOODRUFF: Well, no, it hadn't been much engineering, but I spent almost the entire year checking the crown sheet marker on all of the locomotives and the New York, New York to Buffalo division. Do you know what the crown sheet marker is?

CRAWFORD: No, sir. Perhaps you could explain that.

WOODRUFF: Well, all the steam locomotives had the fire box right over the fire. That is called the crown sheet and it's a very important part of the locomotive, and on a ordinary, regular locomotive, it's probably not much more than ten or twelve inches of water over the crown sheet. It's absolutely necessary to keep the drive sheet under water. Well,

they had had a locomotive blow up and so they put me on this job of checking the crown sheet. When they started, they didn't seem to have any very definite way of checking the crown sheet except by shutting the locomotive down and taking the gauges out to measure it by the rule. But when they started, I did that for a little bit but I soon figured out if I . . . I'll have to figure out how I did do it.

CRAWFORD: Did you think of a better way to do it?

WOODRUFF: Yes, I figured out a way of taking a small rubber hose and sticking it in through the gauge, in through the hole. You see, the locomotives have a glass gauge that sits right beside the engineer's elbow almost, and by taking the hose and putting it through other holes, I could get the measurement by pouring water in the gauge, or I should just say by hydraulic means.

CRAWFORD: Very well. It was a better method of doing it, wasn't it?

WOODRUFF: Yes, and one that was very easily done.

CRAWFORD: And you made that contribution while you were working for the New York Central?

WOODRUFF: New York Central, yes.

CRAWFORD: And when you went to work for G.E. /General Electric/ what was your position?

WOODRUFF: Let me say before that I stayed with the New York Central for just about a year, and then what was the question you asked me?

CRAWFORD: What was your work then with General Electric?

WOODRUFF: Well, I took the test course. The test course was when you were put to work with a couple of other engineers who had gotten through the course. We had a name for us.

CRAWFORD: Was that part of your job training at G.E.?

WOODRUFF: Well, we were just helpers to the graduate engineers.

CRAWFORD: Was that electrical engineering?

WOODRUFF: That was strictly electrical engineering, yes. We worked first with the graduate engineer, I guess you'd call it, just called the engineer, and you were a helper. You stayed at that for about two years. By that time you did

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LECTURE 1

LECTURE 2

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LECTURE 5

all the test work on the equipment of all kinds.

CRAWFORD: Now, with what sort of equipment were you working?

WOODRUFF: Well, generators, motors--most everything that the General Electric Company made, but largely generators and motors.

CRAWFORD: Did you check equipment that they produced?

WOODRUFF: Yes. .

CRAWFORD: How long did you stay with General Electric?

WOODRUFF: I stayed with General Electric about another two years. At that time I was graduated and I was through with the course, you might say. And then they started me out as a salesman. Well, being a salesman was the last thing I wanted to do, and I quit and got a job down on the Susquehanna at the hydro plant at Connawingo.

CRAWFORD: Now, where was that located?

WOODRUFF: Connawingo is located down in Maryland, I would say, on the Chesapeake.

CRAWFORD: Do you remember what year that was that you left G.E.?

WOODRUFF: Let's see, when did the war break out?

CRAWFORD: 1917.

WOODRUFF: It was 1917 then, I'd say.

CRAWFORD: What would you have been selling with G.E.?

WOODRUFF: Well, I would have been selling all kinds of apparatus. I would have been just a salesman, but I didn't fancy that. I got a job in the Connawingo Forest in Connawingo Power Plant.

CRAWFORD: Was that privately owned--the Connawingo Power Plant?

WOODRUFF: Yes.

CRAWFORD: What was your work at the power plant, Mr. Woodruff?

WOODRUFF: You just did everything that was necessary to operate the plant. To operate the plant, you did whatever you had to.

CRAWFORD: Yes. Was your work mainly in electrical engineering?

WOODRUFF: Yes, it was all handling generators, and working on them and fixing them up and cleaning them up. First you started cleaning them up and then graduated into the engineering capacity, but the first world war broke out at that time and everybody got fired, and I was in the Army for the next three years.

CRAWFORD: Why did everyone at Connawingo get fired when the war started?

WOODRUFF: Well, in a plant like Connawingo you were working on new work as well as you are maintenance, you might say, and also you work construction. Well, they quit all the construction as soon as the war broke out.

CRAWFORD: So you were in service, then, during World War I?

WOODRUFF: Yes.

CRAWFORD: What was your work at that time?

WOODRUFF: As soon as I got fired from Connawingo, DuPont was building a powder plant down at Hopewell, Virginia.

CRAWFORD: Where in Virginia?

WOODRUFF: Hopewell; it's still there. There I was put to work

1. The first part of the report is a general introduction to the subject.

2. The second part is a detailed description of the methods used.

3. The third part is a discussion of the results obtained.

4. The fourth part is a conclusion and summary of the work.

5. The fifth part is a list of references.

6. The sixth part is a list of figures.

7. The seventh part is a list of tables.

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9. The ninth part is a list of footnotes.

10. The tenth part is a list of errata.

11. The eleventh part is a list of acknowledgments.

12. The twelfth part is a list of references.

13. The thirteenth part is a list of figures.

14. The fourteenth part is a list of tables.

15. The fifteenth part is a list of appendices.

running the electrical transmission lines that ran all through the reservation.

CRAWFORD: Now, was this before you went into the army?

WOODRUFF: Yes.

CRAWFORD: How long did you stay at the DuPont plant?

WOODRUFF: I was there about two years.

CRAWFORD: And you were in charge of the electrical transmission lines in that time?

WOODRUFF: Not all the time, but before the time I got through I was.

CRAWFORD: And did you leave that to go into the army?

WOODRUFF: Yes. Now, wait a minute. Let me think. Yes, I left that to go in . . . No, I didn't either. Wait a minute. No, I think I was right in the first place.

CRAWFORD: That you left DuPont and went into service?

WOODRUFF: Yes.

CRAWFORD: Where did you enter service, and what branch was it?

WOODRUFF: In the Ordinance Branch. You see, at first we weren't in the war; we were making guncotton for the army.

CRAWFORD: At the DuPont plant.

WOODRUFF: Yes, at the DuPont plant.

CRAWFORD: So you were engaged in war work there, weren't you?

WOODRUFF: Yes, only not for the government.

CRAWFORD: You were working for DuPont then, weren't you?

WOODRUFF: Yes.

CRAWFORD: Do you remember the year that you went into service?

I believe in 1917, Mr. Woodruff, you were in Huntington, Virginia working for DuPont. Now the next year-- 1918--you entered military service. Do you remember where that was and how long you were in service?

WOODRUFF: I was in Washington quite a while in the Ordnance Division. I was sent out to the proving ground out near . . .

CRAWFORD: Was that in Maryland?

WOODRUFF: Maryland, yes.

CRAWFORD: Was that the Aberdeen Proving Grounds?

WOODRUFF: The Aberdeen Proving Grounds.

CRAWFORD: What sort of work did you do at Aberdeen Proving Ground?

WOODRUFF: Well, mostly we were working on construction, but at the same time at Aberdeen I was firing guns. I shot the hell out of Chesapeake Bay.

CRAWFORD: What sort of guns were you testing?

WOODRUFF: They were army ordinance. That means they weren't Navy.

CRAWFORD: Were you testing small arms or artillery?

WOODRUFF: I was testing artillery mainly, but not guns for the Navy. We were just shooting guns for the Army.

CRAWFORD: I believe that you were commissioned a Lieutenant and in 1919 you were promoted to Captain?

WOODRUFF: Yes.

CRAWFORD: Do you remember when you were discharged from service?

WOODRUFF: Isn't it there?

CRAWFORD: Perhaps it was in 1920, or at the end of 1919. I know the army was demobilizing then.

WOODRUFF: Yes, I think it was in 1919.

CRAWFORD: Where did you go to work after your release from service?

WOODRUFF: I went to work with a construction engineer whose name I've forgotten.

CRAWFORD: Did you start your own business?

WOODRUFF: No, at one time I was at the Aberdeen Proving Ground.

CRAWFORD: During the war period?

WOODRUFF: Yes. Well, let's see. Then I worked for two different engineering firms. I can't remember the name of either one of them.

CRAWFORD: What was your work with the engineering firms? Did you do electrical engineering work?

WOODRUFF: Yes, I was drawing up plans for various electrical installations of one kind or another, and then I was still working for the construction engineer when I was building the transmission line from up in the middle of Pennsylvania. I can't recall exactly.

CRAWFORD: Where was your headquarters at this time?

WOODRUFF: That's what I was trying to remember. At Huntington.

CRAWFORD: Huntington, Virginia?

WOODRUFF: Yes.

CRAWFORD: But, did your work extend outside of Virginia?

WOODRUFF: No, wait a minute, it wasn't Huntington, Virginia.

It was Huntingdon, Pennsylvania. I think that's right--it was Huntingdon, Pennsylvania.

CRAWFORD: Yes, sir. There is a notation here about Huntingdon in 1917. In what areas did you work at that time? Did your engineering work cover several states?

WOODRUFF: No, it was building the transmission lines. I'll have to get a map to figure it out.

CRAWFORD: How long during the 1920's did this work continue?

WOODRUFF: Oh, not much more than a year. I've skipped something.

CRAWFORD: When you left service at Aberdeen, did you go immediately into engineering work again?

WOODRUFF: Yes, I did. I guess it doesn't make much difference.

CRAWFORD: No, the exact years are not too important, I believe, there, sir. But for several years you did do engineering work?

WOODRUFF: Yes, I was building the transmission lines from

Huntingdon to . . . I forget the name of the town.

CRAWFORD: Was it in Pennsylvania?

WOODRUFF: It was in Pennsylvania.

CRAWFORD: Well, let's see. That occurred during the 1920's.
Did you continue living in Pennsylvania through the
'20's?

WOODRUFF: Yes. I didn't leave Pennsylvania. There was a
period there where I worked for a couple of engineers,
just working on small installations, putting in electric motors
and so forth and so on.

CRAWFORD: But this occurred during the 1920's, and you were
in Pennsylvania at that time.

WOODRUFF: There's a time there I got married and my wife died.
There was a period there when I worked for the
Philadelphia Electric Company.

CRAWFORD: The Philadelphia Electric Company?

WOODRUFF: Yes.

CRAWFORD: Would that have been in the 1920's?

WOODRUFF: Yes, that would have been in the 1900's.

CRAWFORD: Do you remember how long you worked with the Philadelphia Electric Company?

WOODRUFF: I worked about ten years with them.

CRAWFORD: Then that accounted for all the 1920's, I believe, didn't it, Mr. Woodruff?

WOODRUFF: Yes, that's the deal I guess, yes.

CRAWFORD: Do you remember what sort of work you did for the Philadelphia Electric Company during that time?

WOODRUFF: Yes, I built all the 20,000 kw transmission lines around Philadelphia.

CRAWFORD: I suppose they were considered rather large lines then, weren't they?

WOODRUFF: Yes, they were 22,000 lines from Connawingo, all the way into Philadelphia. I was working for the

Philadelphia Electric Company.

CRAWFORD: In transmission line work at that time?

WOODRUFF: Yes.

CRAWFORD: Did you continue working for the Philadelphia Electric Company until you went to TVA?

WOODRUFF: Yes, I worked about ten years for the Philadelphia Electric Company.

CRAWFORD: And you left that, I believe, in 1933, or did you go to TVA its first year?

WOODRUFF: I went to TVA in 1933.

CRAWFORD: The very first year, then, that it existed, didn't you?

WOODRUFF: Yes.

CRAWFORD: Very well, then. We've covered your background, Mr. Woodruff. Let's take a short rest a few minutes and then we'll talk about TVA.



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CRAWFORD: Mr. Woodruff, let's deal now with your experience with the Tennessee Valley Authority since we have covered your background in the preceding interview. How did you first learn about TVA and decide to go to work for the Authority?

WOODRUFF: Well, I first learned about TVA when my wife and her sister were down in Washington and they knew about the beginning of the TVA, and while we were there I had a short interview with Lilienthal.

CRAWFORD: That was in Washington in 1933?

WOODRUFF: Yes.

CRAWFORD: Do you remember when in 1933 that was? Was that in

the summer?

WOODRUFF: Yes, that was in the summer of 1933.

CRAWFORD: Where did you meet Mr. Lilienthal?

WOODRUFF: In Washington.

CRAWFORD: Do you remember where the meeting took place there?

WOODRUFF: Well, our assistant here knew something about
Lilienthal and even found his office, and I didn't
have anything more than just a few minutes conversation with
him.

CRAWFORD: Did you make application at that time for work with
TVA?

WOODRUFF: No, I don't think I made any definite . . . But
anyway Lilienthal took my name. That's about all.
He interviewed me a little bit about what I had been doing, and
do you want me to go on?

CRAWFORD: Yes, sir, but first what did he tell you about TVA?
What did you think about the Authority after your
interview?

WOODRUFF: I didn't think much of anything except that there were some transmission lines to be built somewhere, and as I had spent about ten years building them, I presume that Lilienthal . . . He sent a man, Mr. Evans--Llewellyn Evans--up to Philadelphia. We were down there with her sister . . .

MRS. WOODRUFF: He saw the advertisement in the newspaper for an engineer.

WOODRUFF: But at any rate, we were back in Philadelphia when Mr. Evans called me on the telephone.

CRAWFORD: This was Mr. Llewellyn Evans?

WOODRUFF: Yes, and we met at my mother's house in Ardmore, Pennsylvania, where I grew up most of the time. This Mr. Evans--we didn't have too much conversation, but at any rate he went on without making any further arrangements, but a couple of days later I got a telephone call from him. You see, he had my telephone number.

CRAWFORD: Yes.

WOODRUFF: And he wanted to meet me again, and we met at my mother's house in Ardmore. Well, we just had a

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short conversation and he sent me down. Now, in between there-- I don't know if it'll interest you, but what happened was that after the first interview with Mr. Evans, he went on without engaging me and he hired another man who had worked for the Philadelphia Transit Company and he sent him down to Chattanooga with his wife--drove down in a company car. From Chattanooga he sent him down to the Shoals--Wilson Dam--with his wife. Somewhere about half way down the car was wrecked and the man was killed, and Mrs. Evans survived.

CRAWFORD: Mr. Llewellyn Evans was in the wreck too?

WOODRUFF: No, he was still in Philadelphia. As soon as he heard about that, why he got ahold of me and sent me down.

CRAWFORD: So that was in 1933 that you first went to work for TVA?

WOODRUFF: Yes.

CRAWFORD: Did you go directly to Chattanooga or did you go by way of Knoxville?

WOODRUFF: No, we came down by Knoxville. We lived in Knoxville for perhaps six months.

CRAWFORD: Where did you stay when you were in Knoxville?

WOODRUFF: It was a house on White Street.

CRAWFORD: Did you know it would be temporary or did you expect to remain there?

WOODRUFF: No, we just didn't know what to expect. Neither did anybody else, but at any rate Mr. Evans already had some man--another party--Harry Fox, who was already starting to work on running the transmission lines from Knoxville to Huntsville, or Cleveland is really where it went to.

CRAWFORD: So the work was already started when you arrived?

WOODRUFF: Yes, but it wasn't anything but survey.

CRAWFORD: How were they surveying that? Did they have surveying crews?

WOODRUFF: Yes, they had this fellow, Harry Fox, who is now running . . .

MRS. WOODRUFF: He got in the army and then he had his retirement coming to him, and he's now in Atlanta with something about the roads.

WOODRUFF: He is a politician down there. I don't know, but he's awful busy.

CRAWFORD: I would think he would be.

WOODRUFF: Where was Llewellyn Evans at this time? Was he working in Knoxville?

MRS. WOODRUFF: Yes, they lived in Knoxville.

WOODRUFF: Now, wait a minute.

MRS. WOODRUFF: Yes, because we had them for dinner and she had me go out there. They were living in an apartment on that street that all the big houses are on outside of Knoxville, as you come out to get to Chattanooga. I can't remember the name.

WOODRUFF: But we stayed in Knoxville for about two years.

MRS. WOODRUFF: No, no. We didn't stay in that white house more than six months; then you heard you were going to be sent to Chattanooga and as soon as the kids were out of school I came down here and you had to stay some time in Knoxville and you stayed with the Healeys. Then you came down and opened the office here, but it all happened in that six-month period.

CRAWFORD: What about the surveys during this period? Did you have survey crews?

WOODRUFF: Yes, Fox had this crew working out of . . .

MRS. WOODRUFF: Dayton.

WOODRUFF: He did have a crew down here at Dayton.

MRS. WOODRUFF: Malcomb Rollins was there too. He followed you down from Philadelphia Electric.

WOODRUFF: Well, he was there before I was.

CRAWFORD: Did you make any use of aerial photographs for surveys?

WOODRUFF: Yes, a good deal.

CRAWFORD: Was that a new practice at the time?

WOODRUFF: No, they were photographing that whole territory long before they were building the transmission lines. That was just a survey.

CRAWFORD: Were there any special problems with using aerial

photographs for surveys?

WOODRUFF: No.

CRAWFORD: What about how this compared with your experience with Philadelphia Electric? Did you follow the same techniques in transmission line planning?

WOODRUFF: Well, we didn't have much finesse in this. It was rough country, and you just started out surveying, and if you run into something that is too difficult, why you back up and go on again. You don't survey all at once, you know; you keep running lines until you get something that's feasible. You have to miss barns and houses and all kinds of things, and you have to make a lot of trail surveys, and finally you get surveyors and survey it, but that's considerable after all these 25 miles back . . . You're working 25 miles back from where you've gotten a fixed point.

CRAWFORD: Yes. Did you have any difficulty getting the lines across the sort of territory you had in Tennessee?

WOODRUFF: No.

CRAWFORD: I know you had some mountains.

WOODRUFF: Of course, you had difficulties in terrain which you can't help but with the transmission lines, they don't really bother you very much.

CRAWFORD: Were you able to stay on the schedule you wanted? Did you have trouble getting the right to build the lines?

WOODRUFF: No, we had very little difficulty in getting the right of way. You see you're working in rough country, and of course, in building your line you avoid obstacles that you know like barns, and so forth.

CRAWFORD: Were you generally able to follow a fairly straight line with your transmission planning?

WOODRUFF: Well, no. You don't follow a straight line because mainly you can't get into things like houses and barns and various things that it's cheaper to go back a bit than it is to go through.

MRS. WOODRUFF: Warren, wasn't Roy Simons the man from Philadelphia Electric who followed you down and bought the right-of-way?

WOODRUFF: Roy Simons bought a lot of right-of-way when he was down here, I think, before I was.

CRAWFORD: Did you have anything to do with the right-of-way buying, or was that done by someone else from the other groups.

WOODRUFF: All of the right-of-way buying was done by other people, and this Roy Simons was the fellow who did that. Roy has one story--I don't know whether you want to use it or not--but he ran into some trouble up around the Smokies. There was an old man with a young wife, and Simons was trying to buy the right-of-way right through his property. She wanted to sell and the old man didn't, but Roy wasn't getting anywhere at all until he saw in the paper that this man had died. So he rushed out to the place and interviewed the woman, and got the right-of-way. And after he had gotten the right-of-way and the thing all signed up, he said, "What happened to your husband?" She said, "I shot the son of a bitch." (Laughter)

MRS. WOODRUFF: Another story they tell is where the man who had given right-of-way, had one hanging-down light bulb in his shanty, and you all went up there and turned it on, and he got electricity.

CRAWFORD: Did you put the bulb in for him?

WOODRUFF: Well, yes. That was up at Dayton.

CRAWFORD: Where did you build these transmission lines--where did you build the first ones? I know you had them all over East Tennessee by the time you were through.

WOODRUFF: Well, the first big ones were the Norris to Wilson Dam lines. It just went from one end to the other; that's about all you can say.

CRAWFORD: You had to build that across the Cumberlands, didn't you?

WOODRUFF: Yes, I've got plenty of information back there but I didn't take time to find it.

CRAWFORD: You had to build new lines as each dam was completed, didn't you?

WOODRUFF: Yes, usually more than one line at each dam.

CRAWFORD: Did your work continue in that throughout the 1930's and until World War II?

WOODRUFF: Yes, and they're still building them.

CRAWFORD: Did you have any particular changes in your work before World War II? Was it all in transmission line work?

WOODRUFF: I was working for the civil engineer (I think I mentioned that) in Philadelphia for a while. We were electrify and closure men.

CRAWFORD: And in your work here, for TVA, you also did some substation planning, didn't you?

WOODRUFF: Now, the big substations were all done up in Knoxville. Most of the other subs were under my control and they were scattered all through the country here.

CRAWFORD: What about World War II---what effect did that have on your transmission line work?

WOODRUFF: Not any. It made it a little more difficult to get materials and so forth and so on, but of course, we were slowed down some.

CRAWFORD: Did you have a great deal more work to do during World War II? Was there more line building?

WOODRUFF: No, I'd say not. It all slacked off through that period.

CRAWFORD: What about the end of the war? Did your work change after the World War was over?

WOODRUFF: No, we just started back where we left off before the war.

CRAWFORD: Did you continue to work in transmission line planning throughout the 1940's, after the war ended?

WOODRUFF: Oh, yes, and they're still doing it.

CRAWFORD: What year did you retire, Mr. Woodruff? Let's see, it was at the age of 70, wasn't it?

WOODRUFF: Yes.

CRAWFORD: That would have been about '57 or so?

WOODRUFF: No, I was 75.

MRS. WOODRUFF: No, Warren, you retired at 70.

WOODRUFF: You're right, it was 70.

CRAWFORD: I think the usual retirement age was 65, but for people they really wanted to keep, they could continue them to as far as age 70, wasn't it?

MRS. WOODRUFF: Yes, and now it's 65.

WOODRUFF: Really, I got extended, you see. I hadn't had as much service as most of them would get, so I was allowed to work until I was 70. It was a regular regulation; there wasn't anything special about it.

MRS. WOODRUFF: Didn't Bob Milton carry on all the substation business for you?

WOODRUFF: Well, he went right on in his job, until he retired.

CRAWFORD: And the year you retired was 1957 then, at the age of 70, so you had a full career working for TVA-- from 1933 until '57.

MRS. WOODRUFF: All those pins they all get there--25-year pins-- that you didn't get by a year.

WOODRUFF: I never did get a pin.

MRS. WOODRUFF: You never got a pin because it wasn't right.

CRAWFORD: But you did have a long period of service with them,
and I appreciate the information, Mr. Woodruff.





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